

REMARKS

Claims 1-3, 5-11 and 14-23 are pending in the application. Claims 1, 7, 9-10, and 14 have been amended, and claims 4, 12 and 13 have been cancelled.

No new matter has been introduced by the amendment.

REJECTION UNDER 35 U.S.C. §103(a)

Claims 1-3 and 5-23 have been rejected over De in view of Buchwalter et al. and Hiyamizu et al. This rejection is overcome in view of the amendment of claims 1 and 10 together with the following remarks.

Claim 1, as amended, recites a method for processing a workpiece that includes the steps identified below with certain elements highlighted in boldface print.

A method of processing a workpiece, the method comprising the steps of:

- (a) applying a liquid adhesive to a work carrier, wherein the work carrier comprises a porous material including a plurality of pores at least a portion of which are interconnected;
- (b) applying a vacuum pressure to the work carrier, wherein the plurality of pores accommodate a portion of the liquefied solid upon application of the vacuum pressure to the work carrier;
- (c) placing the workpiece in intimate contact with the liquefied adhesive;
- (d) hardening the liquefied adhesive while maintaining the vacuum pressure to form a solid adhesive and to secure the workpiece to the work carrier;
- (e) processing the workpiece while holding the workpiece on the work carrier; and
- (f) applying a solvent through the plurality of pores to dissolve the solid adhesive and to release the workpiece from the work carrier.

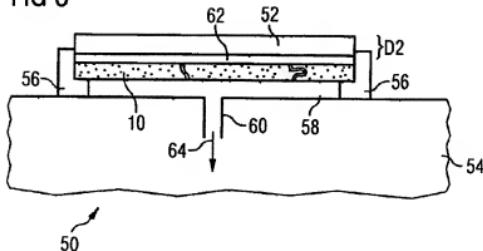
Thus, claim 1 recites a process in which the liquefied solid is drawn into the plurality of pores by the applied vacuum pressure. The workpiece is attached by placing it in contact with the liquefied adhesive. The adhesive is then hardened, while maintaining the vacuum pressure. Following processing of the workpiece, the solid adhesive is released by action of a solvent.

As taught by the applicants in their Substitute Specification at paragraph [0007], “[p]orous means that the work carrier contains a multiplicity of cavities in the interior and also at its surface. These cavities are also referred to as pores.” In paragraph [0008], the applicants describe that “a vacuum is generated after application of the solid in liquefied form and before it has hardened. The vacuum sucks the solid into the initial sections of the pore passages.” Continuing in paragraph [0009], an unanticipated advantage of the applicants’ process is that “[d]ue to the suction, the solid is uniformly distributed in a simple manner. Air bubbles are drawn off, so that adhesion over the entire surface is achieved.” The pores are configured to cooperate with the liquefied solid under vacuum so that

“The vacuum is preferably set in such a way that the penetration depth of the liquefied solid does not exceed the average pore width. The adhesion between solid and work carrier is increased by this measure. Nonetheless, the adhesive can easily be released again from the work carrier.” (paragraph [0010])

An embodiment of the inventive process is depicted in the applicants’ drawing at FIG. 3, shown below.

FIG 3



A semiconductor wafer 52 is put in intimate contact with the liquefied adhesive 62, which is then drawn into the pores in the workcarrier 10 by vacuum pressure through suction passage 60. The vacuum is turned off after the adhesive has hardened. (See paragraph [0030]).

The applicants assert that the cited combination of references does not render claim 1 obvious, at least because the combination of the cited references does not yield the elements of the applicants' recited process.

The applicants have pointed out the deficiencies of the individual references in their previous responses. Those remarks are incorporated herein. The Examiner asserts that, when viewed in combination, the references render the applicants' invention obvious. The Examiner asserts that De teaches a porous workcarrier, that Buchwalter et al. teach that fluid can penetrate a porous work carrier, and that Hiyamizu et al. teach penetration in a porous vacuum chuck. The Examiner further asserts that adhesives can be hardened to attach two articles together. (Office Action pg. 2-3).

The applicants assert that the combination of references does not suggest their invention, at least because even when combined, the combination does not provide a process of applying a liquefied adhesive, drawing the adhesive into a pore network, where the pore network is configured to accommodate a liquefied solid, attaching a workpiece, and hardening the liquefied adhesive to a solid, where the adhesive is hardened while in the pore network. In view of the failure of the cited references to suggest or disclose the claimed method, a *prima facie* case of obviousness is not established. The applicants note that even under the obviousness standards established by *KSR International*, the applicants claims are directed to more than a combination of known elements combined in such a way as to yield an expected result. *KSR International Co. v. Teleflex Inc.*, 550 U.S. __, 82 USPQ2d 1385 (2007).

Claims 7, 9, and 14 have been amended to maintain consistency with the amendment of claim 1 from which they depend.

Claims 2-3, 5-9, and 14-21 are allowable in view of their dependence on claim 1.

A work carrier arranged in accordance with the invention is recited in claim 10. The applicants have amended claim 10 to recite the particular structural features of the invention that relate to the changing state of the adhesive. Specifically, the pores are configured to accommodate a portion of the liquefied adhesive have a workpiece in intimate contact therewith. Notably, the pores are also configured to accommodate the liquefied adhesive upon hardening of the

adhesive to a solid. The applicants assert that such a work carrier is not suggested by the cited prior art.

Claims 11 and 22-23 depend from claim 10 and describe further aspects of the work carrier of claim 10. These claims are allowable in view of the amendment and remarks pertaining to claim 10.

The rejection of claims 12-13 is now moot in view of their cancellation.

The applicants have made a novel and non-obvious contribution to the art of semiconductor fabrication technology and handling equipment. The claims that they should distinguish over the cited references and are in condition for allowance. Accordingly, such allowance is now earnestly requested.

Respectfully submitted,

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